



PRESENTATION OUTLINE

- Information Resources
- Summary
 - What water quality standards (WQS) are
 - How they work
 - · State context
 - · Federal context
- History
 - State and Regional
 - Federal

More Resources

- EPA WQS Handbook
 - http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm
- EPA Clean Water Act website
 - http://cfpub.epa.gov/npdes/cwa.cfm?program id=45
- EPA Water Quality Standards website
 - http://water.epa.gov/scitech/swguidance/waterquality/standards/ind ex.cfm
- DES surface water assessment website
 - http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm
- EPA Water Quality Standards Academy
 - http://water.epa.gov/learn/training/standardsacademy/index.cfm

WQ STANDARDS: 3 ESSENTIAL COMPONENTS

- DESIGNATED USES (DU)
 - Goal uses: "what do we (society) want to use the waters of the state for?" OR "What valuable things do we want waters to do?
- CRITERIA TO SUPPORT THE USES
 - What are the measurable attributes of waters related to each DU, and what is a minimum acceptable value?
- ANTIDEGRADATION

The idea of USES and CRITERIA to support the uses has been in NH WQS legislation since 1947, and in federal Water Pollution Control Act Legislation since at least 1965, and probably before that.

- DESIGNATED USES usually have a NARRATIVE description ["acceptable for fishing"]
- [From EPA website] A water body's designated uses are important because:
 - Taken together, they articulate the vision for the water body.
 - They establish the water quality management goals for the water body.
 - If they are wrong, everything else is wrong.

Federal History of Antidegradation*

- Concept established in 1968 by U.S. Department of Interior. (Interior handled WQ issues prior to EPA)
- First policy statement included in EPA's first Water Quality Standards Regulation (40 CFR 130.17,40 F.R. 55340-41, November 28, 1975).
- Refined & re-promulgated as part of the current program regulation published on November 8, 1983 (48 F.R. 51400, 40 CFR 131.12).
- Based on the spirit, intent, and goals of the CWA Section 101(a): "... restore and maintain the chemical, physical and biological integrity of the Nation's waters."

*From a 2008 Indiana web presentation

Criteria

- CAN BE EITHER:
 - NARRATIVE ["The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region. Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function."]

OR

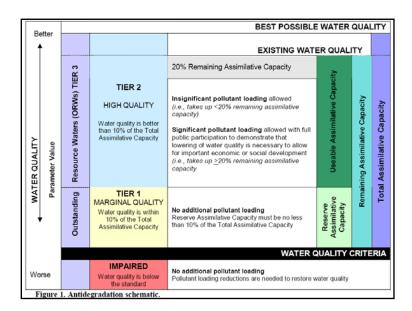
- NUMERIC ["The pH of Class B waters shall be 6.5 to 8.0, unless due to natural causes."]
- Usually both apply

Antidegradation

- Federal regulation 40CFR 131.12
- Tier 1 Protection and maintenance of existing uses and water quality supporting those uses. <10% remaining assimilative capacity
- Tier 2 So-called "High Quality Waters" Where the quality of water is better than the applicable water quality standards, those water bodies should be maintained at that existing high quality unless it is necessary to accommodate important social or economic considerations. If such a decision is made, existing uses must still be fully protected
- Tier 3 This is the highest level of protection from pollution to waters specifically identified as very high quality. These water bodies are designated as Outstanding Resource Waters (ORWs). No permanent degradation is allowed

WHAT GOOD ARE WQS?

- Setting NPDES permit limits for specific pollutants
- Developing performance standards for other permits, like AoT, Subsurface, Large GW withdrawals
- Identifying "impaired" waters and setting restoration targets for specific pollutants or for biological indices
- Identifying "high quality" waters for protection



FEDERAL CONTEXT

- CWA Section 303
 - States adopt standards
 - EPA reviews and approves for meeting minimum requirements of CWA. Approved standards become federally enforceable
 - Aquatic Life and Recreation are required DUs
 - Triennial Review required: public input on WQS and needed changes
- CWA Section 304(a)
 - EPA can promulgate recommended criteria for states to adopt if they choose
 - This is where NH toxics and Ammonia criteria come from

MORE FEDERAL CONTEXT

- 305(b) Report every 2 years (even years) on status and trends of all state waters relative to DU
 - Impaired Waters List
- 303(d) List (approved by EPA)
 - Waters impaired by pollutants
 - TMDLs required

NH CONTEXT

NEW HAMPSHIRE STATUTES

CHAPTER 485-A: WATER POLLUTION AND WASTE DISPOSAL

Section 485-A:1 Declaration of Purpose.

Section 485-A:2 Definitions.

Section 485-A:8 Standards for Classification of Surface Waters of the State.

Section 485-A:9 Classification Procedure.

Section 485-A:10 Reclassification Procedure.

Section 485-A:11 Public Waters Classified.

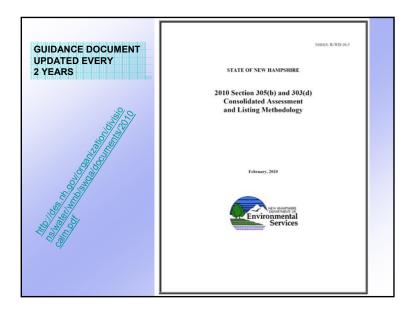
Section 485-A:12 Enforcement of Classification.

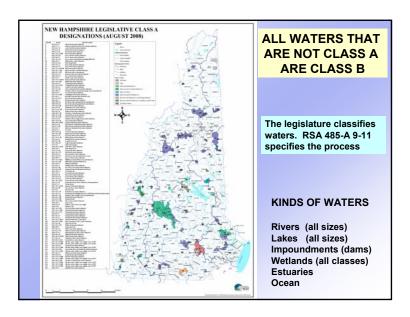
NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

CHAPTER Env-Wq 1700 SURFACE WATER QUALITY REGULATIONS

STILL MORE FEDERAL CONTEXT

- Water Quality Certification (401 certification)
 - State must certify that WQS will not be violated for activities that may discharge and get federal permits
 - NPDES (includes general permits), Wetlands (404), FERC
 - In state statute (as of 2008) RSA 485-A:12
- NPDES permits (issued by EPA for NH) must have limits that will not result in WQS violations





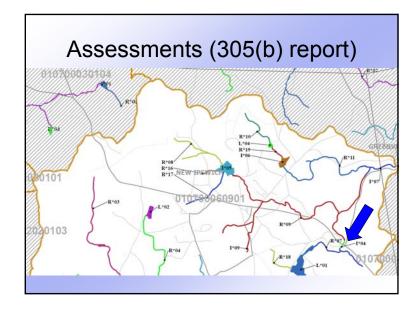
In NH, the DESIGNATED USES for Class A and Class B are THE SAME

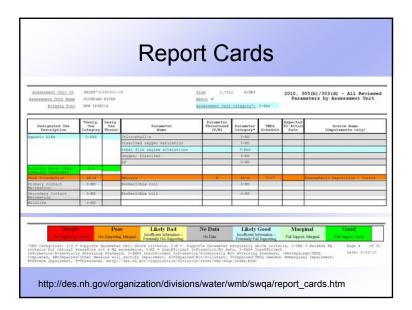
- · CLASS A
 - Aquatic Life
 - Recreation
 - DW supply after adequate treatment
 - Fish/Shellfish consumption
 - Wildlife

- · CLASS B
 - Aquatic Life
 - Recreation
 - DW supply after adequate treatment
 - Fish/Shellfish consumption
 - Wildlife

Based on CALM interpretation of law and rule

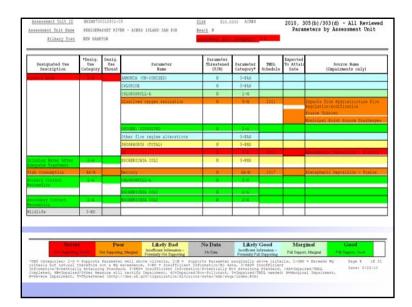
PARAMETER	CLASS A	CLASS B	SOURCE
TARAMETER	OLAGO A	CEACO B	OOOROL
QUALITY	"of the highest quality"	"of the second highest quality"	RSA 485-A:8
BACTERIA (e. coli)	47 60-d geometric mean	126 60-d geometric mean	
[unless naturally occurring]	153 single sample	406 single sample	RSA 485-A:8
DISCHARGE OF SEWAGE OR	"no discharge of any	"adequate treatment"	
WASTES	sewage or wastes"	before discharge	RSA 485-A:8
	"no phosphorus or nitrogen unless naturally	"no phosphorus or nitrogenthat would impair any existing or designated uses, unless	
NUTRIENTS	occurring" 75% sat, daily average	naturally occurring" 75% sat, daily average	Env-Ws 1700
DISSOLVED OXYGEN	6 mg/l instantaneous minimum	5 mg/l instantaneous minimum	Env-Ws 1700
Ph	not specified	6.5-8.0 except natural	RSA 485-A:8
BENTHIC DEPOSITS	none unless naturally occurring	no detrimental impact on benthic community	Env-Ws 1700
OIL AND GREASE	none unless naturally occurring	no existing or designated use impairment	Env-Ws 1700
COLOR	none unless naturally occurring	no existing or designated use impairment	Env-Ws 1700
TURBIDITY	none unless naturally occurring	10 NTUs over natural	Env-Ws 1700
SLICKS, ODORS, SURFACE FLOATING SOLIDS	none unless naturally occurring	no existing or designated use impairment	Env-Ws 1700
TEMPERATURE	no change unless naturally occurring	no change from discharges that interferes with designated use	Env-Ws 1700 RSA 485-A:8





MORE NH CONTEXT-401 certs

- RSA 485-A:12.IV (2008)
- Wetlands
 - One certification for the SPGP: state-issued wetlands permits are pre-certified
 - Projects with large wetland impacts get an individual Corps 404 permit and an individual certification
- AoT / EPA Construction General Permit
 - One certification for the CGP: Projects that file an NOI with EPA are pre-certified.
 - The new AoT rules incorporate WQS provisions



HISTORY

- 1947
 - NH adopts first WQS:
 - 4 classes: A,B,C,D
 - New England Interstate Water Pollution Control Commission established
 - · Interstate compact, with federal authorization
 - · 6 NE states and NY
 - Original purpose was to coordinate WQS among member states for interstate waters
 - Merrimack, Androscoggin, Connecticut, Hudson.....

• 1949

- Legislature makes first surface water classifications
 - Class A: no discharge of sewage or waste, suitable for public water supply after disinfection, <50/ 100 ml coliform bacteria
 - Class B: DO near saturation, pH 6.5-8.0, no objectionable physical characteristics, and suitable for bathing and other recreational purposes, <240/100 ml coliform bacteria
 - Class C: DO>5 mg/l, pH 6.0-8.5, free from slicks, odors, unreasonable floating solids, acceptable for boating, fishing, industrial water supply
 - Class D: free from unreasonable slicks, sludges, or floating solids, and aesthetically acceptable. Suitable for certain industrial purposes, power, and navigation

1965

 Congress enacts the Water Pollution Control Act, creating a process for WQS for interstate waters

• 1972

- Federal Clean Water Act enacted (also called FWPCA amendments of 1972)
- · Sometime after 1972:
 - rule authority is added to RSA 485-A
 - VI. Notwithstanding anything contained in this chapter, the commissioner shall have the authority to adopt such stream classification criteria as may be issued from time to time by the federal Environmental Protection Agency or its successor agency insofar as said criteria may relate to the water uses specified in RSA 485-A:8, I and II, provided, however, that the criteria thus issued shall not result in standards that are less than nor exceed the standards of the classification duly enacted by the general court as provided for in RSA 485-A:9 or 485-A:10.

1973

EPA approves NH WQS

• Since 1947, the legislature has enacted 20 chapter laws classifying waters as "A". Of these, 15 legislative actions occurred on or before 1965, three between 1965 and 1971, and three since 1971. Of the resulting 119 classifications or reclassifications of specific surface waters, only 6 are not past or present PWS. The first non-PWS "A" classifications were made in 1959 for Squam and Little Squam Lakes, followed by Newfound Lake in 1963, Pleasant Lake (New London) in 1971, Blackwater River in 1973, and Lake Wentworth in 1988. The last legislative reclassification occurred in 2010 when Pleasant Lake in Deerfield was reclassified "A".

1977

- Congress amends Clean Water Act
 - NPDES permit program established
 - · Construction Grants program funded
 - · Nonpoint Sources added
- 1973
 - WSPCC adopts first WQS rules to supplement RSA 485-A:8
- 1977
 - WSPCC adds antidegradation to WQS rules
- 1987
 - More amendments to Clean Water Act
 - Construction Grants program replaced with SRF
 - · Criteria for toxics added as required in state WQS
- 1990
 - DES (created in 1987) publishes revised WQS rules

• ~ 1990

 EPA recommended bacteria criteria (1986) for swimming (primary contact recreation) are incorporated into RSA 485-A:8

• 1991

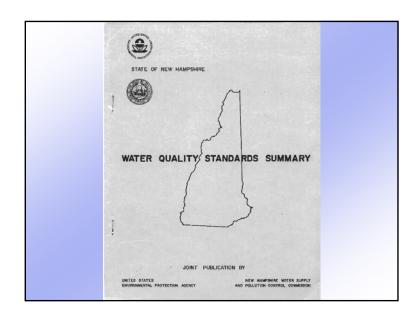
- Legislature reclassifies all "C" waters to "B"
- There are now only 2 classes: A and B
- 1996
 - DES publishes revised WQS rules
 - EPA declines to approve them

2008

- DES readopts WQS rules, with no substantial change from the 1999 rules
- EPA determines that their 1999 approval still applies
- 2008
 - NWI wetland assessment units added to waterbody catalog
- 2010
 - Waterbody catalog enhanced to 1:24K NHHD
 - Wetlands AUs substantially revised to be consistent with NH Method
 - HB 1305 introduced and sent to interim study by WQSAC

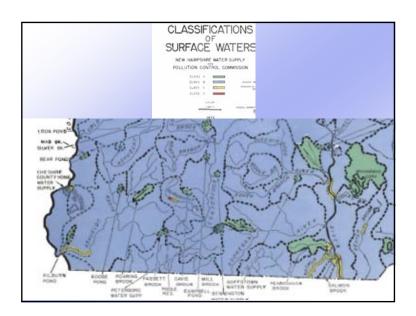
1999

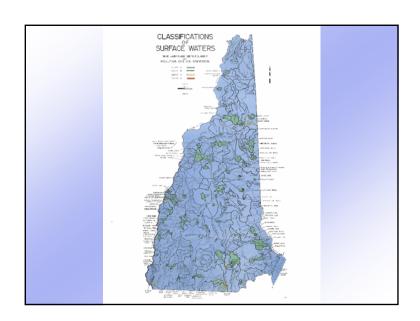
- DES adopts amended WQS rules
- EPA approves NH WQS (RSAs and Rules)
- Amended rules include:
 - "Waters" definition that includes all "Waters of the US", including wetlands
 - · More detailed antidegradation policy
 - Water quantity adequate to "protect existing and designated uses"
- 2000
 - WQSAC formed
- 2002
 - DES publishes first 305(b) / 303(d) consolidated assessment that uses NHD and "Assessment Units"

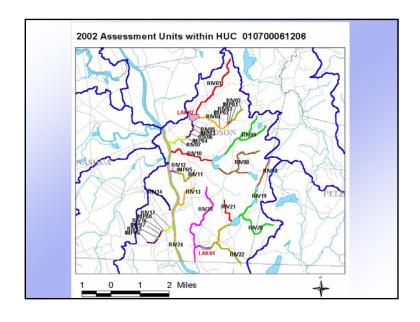


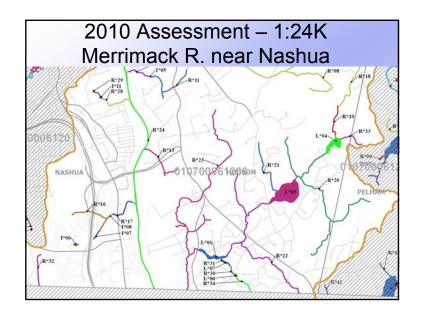
	Class A	Class B	Class C	Class D
	Potentially acceptable for public water supply after disinfection. No discharge of sewage or other wastes. (Quality uniformly excellent).	Acceptable for bathing and recreation, fish habitat and public water supply after adequate treatment. No disposal of sewage or wastes unless adequately treated. (High aesthetic value).	Acceptable for recreational boating, fishing, and industrial water supply with or without treatment, depending on individual requirements. (Third highest quality).	Aesthetically acceptable. Suitable for certain industria purposes, power and navigation. (Lowest allowable quality now less than 1/2 mile in entire state).
Dissolved Oxygen	Not less than 75% Sat.	Not less than 75% Sat.	Not less than 5 p.p.m.	Not less than 2 p.p.s
Collform Bacteria per 100 ml	Not more than 50	Not more than 240 in fresh water. Not more than 70 MPN in salt or brackish water.	Not specified	Not specified
рн	Natural	6.5 - 8.0	6.0 - 8.5	Not specified
Substances potentially toxic	None	Not in toxic concentrations or combinations.	Not in toxic concentrations or combinations.	Not in toxic concentrations or combinations.
Sludge deposits	None	Not objectionable kinds or amounts.	Not objectionable kinds or amounts.	Not objectionable kinds or amounts.
011 and Grease	None	None	Not objectionable kinds or amounts.	Not of unreasonable kind, quantity or duration.
Color	Not to exceed 15 units.	Not in objectionable amounts.	Not in objectionable amounts.	Not of unreasonable kind, quantity or duration.
Turbidity	Not to exceed 5 units.	Not to exceed 10 units in trout water. Not to exceed 25 units in non- trout water.	Not to exceed 10 units in trout water. Not to exceed 25 units in non- trout water.	Not of unreasonable kind, quantity or duration.
Slick, Odors and Surface-Floating Solids	None	None	Not in objectionable kinds or amounts.	Not of unreasonable kind, quantity or duration.
Temperature	No artificial rise	NHFSGD, NEIMPCC, or NTAC-DI whichever provides most effective control. 3	NHF&GD, NEIWPCC or NTAC-DI whichever provides most effective control. 3	Shall not exceed 90°F.

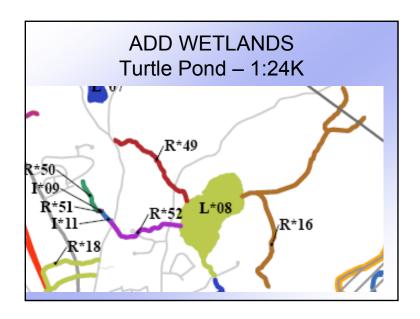
As of 1/1/1970

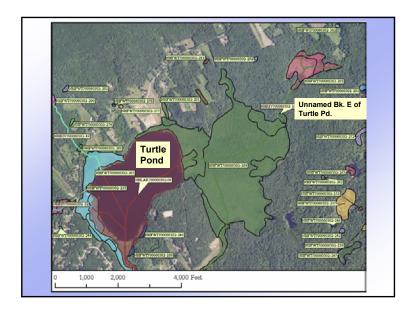












ONE IDEA FOR A MATRIX OF DESIGNATED USES AND SUBCLASSES									
AQUATIC LIFE	SWIMMING	BOATING	DRINKING WATER SUPPLY	FISH CONSUMPTION	SHELLFISH CONSUMPTION	WILDLIFE	GEOMORPHI		
							·		
Natural	Frequent	Frequent	Source Water	Fishing possible	Shellfishing possible	Natural	Natural		
Rural	Occasional	Occasional	Potential Source Water	Not Fish Habitat	Not Shellfish Habitat	Rural	Managed		
Community	Rare	Rare	No Water Supply Potential			Community			
Urban						Urban			